Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

although not without prudent reservations, is clear and along stimulating and evolutionary lines, with a due emphasis of principles and the avoidance of meaningless facts. What is most to be commended, and unfortunately a rare feature in botanical textbooks, is the recognition that stable results in connection with plant evolution can be built only on the firm basis supplied by the record of the rocks. Perhaps the only criticism which might be made of the long chapter on the Conifers is that it does not include among its many and good illustrations some of the anatomy of the group, especially as the importance of this phase of the subject is clearly and adequately recognized in the text.

About 40 pages are given to that fascinating and still, in spite of many recent additions to our knowledge, enigmatical group, the Gnetales. Presenting as it does so many characters, which ally it both with the gymnospermous and angiospermous seed plants, it is at once the lure and the despair of the morphologist. The conclusion is reached that the Gnetales rather represent a line of development from the same ancestry as the angiosperms, than a primitive group from which the higher seed plants have directly taken their origin. The authors seem to look with some degree of tolerance at least on the view, which has originated in recent years from added knowledge of the floral structure of the Bennettitales, to the effect that the angiosperms and Gnetales are an offshoot of the cycadophyte stock. This view of relationship rests entirely on the enigmatical inflorescence of the Bennettitales, and appears to have no support from a consideration of the structure of the gametophytes or the internal anatomy. While entertaining the possibility of a Bennettitean origin of the Gnetales, the authors at the same time suggest a possible derivation from the Coniferales. This is perhaps a more fruitful hypothesis, which may be justified when we possess some real knowledge of the past history of the group.

The volume reviewed is a masterly treatment of our present knowledge of the gymnosperms, and resumes in a particularly clear and happy way, from every standpoint, the evidence as to their structure, affinities, history, and evolution. It is vastly creditable to American morphology, and the statement may safely be made that there is nowhere in existence, at the present time, a general account of the group which is so judicial and authoritative, without being dull, hazy, or uninteresting. It follows of course that it is indispensable to every student of this important group of plants.—E. C. JEFFREY.

Vegetation der Erde

The ninth volume of ENGLER and DRUDE'S monumental work on the vegetation of the earth forms one of a series of monographic treatises that is to deal with the geographic features of the African flora.[3] Although the volume here under consideration is the first of the African series to make its appearance, it is logically the second, and will so stand in the completed work. The first volume is to give a general picture of the plant world of Africa, together with a survey of the ecological conditions. The following three volumes are to present detailed descriptions of the characteristic plants, especially of tropical Africa. The final volume is to deal with the plant formations and floral provinces.

---

[3] ENGLER, A., and DRUDE, O., Die Vegetation der Erde. IX. ENGLER, A., Die Pflanzenwelt Afrikas insbesondere seiner tropischen Gebiete. Band II. pp. xi+460. *pls. 16. figs. 316.* Leipzig: Wilhelm Engelmann. 1908. *M* 27 (subscription price *M* 18).

For many years ENGLER and a number of collaborators have energetically exploited the flora of tropical Africa, especially that of the German possessions. The taxonomic results of this great undertaking have been presented from time to time, and now there is contemplated in these volumes a general summary of the large features of the African vegetation. The volume noted here gives an account of the pteridophytes, gymnosperms, and monocotyledonous angiosperms. For each family there is given a general account of its distribution and importance in Africa, following which is a more detailed description of the more important genera and species. The great wealth of illustrations, many of which are reproductions from photographs, makes this work the best source of ready information concerning the plants of Africa. Among the pteridophytes the Polypodiaceae play much the largest part. The gymnosperms are restricted to three genera each of cycads, conifers, and Gnetales. The grasses, which are presented by PILGER, have an immense number of forms, many of which are of great phytogeographic importance; the chief treatment of this great family is by plant formations rather than by taxonomic relationships. The numerous Cyperaceae are mostly hydrophytes. The palms, of course, are numerous, and are very characteristic of certain formations. The aroids are well developed, though less than in other tropics, and the epiphytic orchids are far less numerous and beautiful than in tropical America and Malaysia. The Liliaceae occur in great numbers and variety, the aloes in particular having a large display in xerophytic regions. Phytogeographers will await with eagerness the remaining volumes of this work.

In 1898 PAX issued the second monograph of ENGLER and DRUDE'S *Vegetation der Erde*, presenting the general features of the vegetation of the Carpathian Mountains. There has appeared a second volume, which takes up certain detailed features of the same interesting region.[4] The first part considers the fossil flora of the Carpathians, especially that of the Tertiary and Post-Tertiary. The Tertiary flora is Upper Miocene, and much resembles the present Mediterranean flora, and as elsewhere in Europe is rich in forms that are now confined to America. It is interesting to note that in the warmer eastern Carpathians there are still some species which have remained as relicts from the Miocene. Since the ice age there has been in the western Carpathians a succession of forest forms, the birch and pine entering soon as pioneers; there followed then in turn the oak, the spruce, and finally the beech. The second part opens with a treatment of Carpathian genera which show slight variation, or which on the other hand are strikingly variable; this study results in interesting deductions of evolutionary importance, There follow a consideration of phenological phenomena, an account of the cultivated plants of the Carpathians, and a phytogeographical description of the thallophytes and bryophytes, which too often are ignored in such treatises. The treatment of the thallophytes is brief, owing to inadequate knowledge of their distribution, but the account of the bryophytes is more satisfactory. The western Carpathians are richer in bryophytes than the eastern Carpathians, owing to the greater rainfall and humidity. The third and final part treats in detail the particular features of the different districts of the Carpathians.—HENRY C. COWLES.

---

[4] ENGLER, A., and DRUDE, O., Die Vegetation der Erde. X. PAX, F., Grundzüge der Pflanzenverbreitung in den Karpathen. Band II. pp. viii+321. *map 1. figs. 29.* Leipzig: Wilhelm Engelmann. 1908. *M 27.*

Plant anatomy

A second edition of STEVENS' *Plant anatomy*[5] has appeared three years after the first edition, which was reviewed in this journal.[6] That review stated fully the purpose and method of the book, so that only the notable new matter in the second edition needs notice here. It consists of a chapter of 38 pages on reproduction, and has been made imperative by the recent rapid development of plant-breeding as a science, involving as it does the fundamental principles of heredity. Professor STEVENS outlines first the mechanism of sporogenesis and of fertilization as now understood, and then presents in a clear and practical way the conclusions that have been reached by the application of MENDEL'S law. As said in the previous review, Professor STEVENS is an excellent teacher, and therefore, by text and apt illustrations, he has made an obscure region as luminous as it can be made for an elementary student.

As an elementary text on physiological anatomy, in which tissues and their functions are interwoven in their presentation, this volume is unique. It is not the new vascular anatomy, with its phylogenetic motive; or the old anatomy, with its deadness of detail; but the old "skeleton" animated by physiology and ecology rather than by evolution.—J. M. C.

MINOR NOTICES

Das Pflanzenreich.—Part 41[7] consists of a monograph of the Garryaceae, Nyssaceae, Alangiaceae, and Cornaceae by Dr. WALTER WANGERIN. In

---

[5] STEVENS, WILLIAM CHASE, Plant anatomy, from the standpoint of the development and functions of the tissues, and handbook of micro-technic. Second edition. pp. xv+379. *figs. 152.* Philadelphia: P. Blakiston's Son & Co. 1910. $2.

[6] BOT. GAZETTE **46**:306. 1908.

[7] ENGLER, A., Das Pflanzenreich. Heft 41 (IV. 56^a; 220$^{a, b}$; 229). Garryaceae, Nyssaceae, Alangiaceae, Cornaceae, von WALTER WANGERIN. pp. 17, 19, 24, 110. *figs. 5 (26), 6 (47), 4 (38), 24 (193).* Heft 42 (IV. 147). Euphorbiaceae-Jatropheae, von F. PAX. pp. 148. *figs. 45 (155).* Leipzig: Wilhelm Engelmann. 1910. *M* 9.20; *M* 7.40.